This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1917, No. 50

PHYSICAL EDUCATION IN SECONDARY SCHOOLS

A REPORT OF THE COMMISSION ON THE REORGANIZATION
OF SECONDARY EDUCATION APPOINTED BY THE
NATIONAL EDUCATION ASSOCIATION

WASHINGTON
GOVERNMENT PRINTING OFFICE
1918

LANE

MEDICAL LIBRARY

SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
SEMPER VIRENS
1885

LEVI COOPER LANE FUND

LANE MEDICAL LIBRARY STANFORD
1781 .N27 1918 STOR
Physical education in secondary schools
24503286854

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1917, No. 50

PHYSICAL EDUCATION IN SECONDARY SCHOOLS

A REPORT OF THE COMMISSION ON THE REORGANIZATION OF SECONDARY EDUCATION APPOINTED BY THE NATIONAL EDUCATION ASSOCIATION

WASHINGTON
GOVERNMENT PRINTING OFFICE
1918

1781
N27
1918

LANE
MEDICAL LIBRARY
SEAL OF THE LELAND STANFORD JUNIOR UNIVERSITY
SEMPER VIRENS
1885
LEVI COOPER LANE FUND

PREFACE.

The Commission on the Reorganization of Secondary Education recognizes health as fundamental among the objectives of secondary education. The importance and essential scope of health education are summarized as follows in the forthcoming report of the reviewing committee of this commission:

> During the period of secondary education health needs can not be neglected without serious danger to the individual and to the race. The secondary school should, therefore, provide health instruction, inculcate health habits, organize an effective program of physical activities, regard health needs in planning work and play, and cooperate with home and community in safeguarding and promoting health interests.
>
> To carry out such a program it is necessary to arouse the public to recognize that the health needs of young people are of vital importance to society, to secure teachers competent to ascertain and meet the needs of individual pupils and able to inculcate in the entire student body a love for clean sport, to furnish adequate equipment for physical activities, and to make the school building, its rooms, and surroundings conform to the best standards of hygiene and sanitation.

The report contained in this bulletin was drafted for the commission by its committee on physical education, and after discussion and revision it has been approved by both the committee on physical education and the reviewing committee. Approval by the reviewing committee does not commit every member individually to every statement and every implied educational doctrine, but does mean essential agreement as a committee with the general recommendations.

Appended to this report, although not a part thereof, are bibliographical suggestions prepared, on request, by the office of the American Physical Education Association.

Clarence D. Kingsley,
Chairman of the commission.

1101
19'3

CONTENTS.

Page.
Preface 4
Membership of committee on physical education 5
Membership of reviewing committee of the commission 5
The problem 7
Health program recommended 9
  I. Health examination 9
    A—Medical inspection 9
    B—Mental examination 9
    C—Physical examination 11
  II. A healthful environment in home and school 11
  III. Instruction in health problems 12
  IV. Physical activities 12
    A—Equipment (minimum requirements) 12
    B—Time allotment (minimum requirements) 15
    C—Kind of exercise 16
  V. School credit 18
Summary 18
Appendix 19
  I. Bibliography for small high schools 19
  II. General bibliography 21
List of reports of the commission on the reorganization of secondary education now available 25

87984

Chairmen of committees—Continued.

Agriculture—A. V. Storm, professor of agricultural education, University of Minnesota, St. Paul, Minn.

Ancient Languages—Walter Eugene Foster, Stuyvesant High School, New York City.

Art Education—Henry Turner Bailey, dean Cleveland School of Art, Cleveland, Ohio.

Articulation of High School and College—Clarence D. Kingsley, State high-school inspector, Boston, Mass.

Business Education—Cheesman A. Herrick, president Girard College, Philadelphia, Pa.

English—James Fleming Hosic, Chicago Normal College, Chicago, Ill.

Household Arts—Amy Louise Daniels, University of Wisconsin, Madison, Wis.

Industrial Arts—Wilson H. Henderson, extension division, University of Wisconsin, Milwaukee, Wis.

Mathematics—William Heard Kilpatrick, associate professor of education, Teachers College, Columbia University, New York City.

Modern Languages—Edward Manley, Englewood High School, Chicago, Ill.

Music—Will Earhart, director of music, Pittsburgh, Pa.

Physical Education—James H. McCurdy, director of normal courses of physical education, International Y. M. C. A. College, Springfield, Mass.

Sciences—Otis W. Caldwell, director Lincoln School, and professor of education, Teachers College, Columbia University, New York City.

Social Studies—Thomas Jesse Jones, United States Bureau of Education, Washington, D. C.

Vocational Guidance—Frank M. Leavitt, associate superintendent of schools, Pittsburgh, Pa.

PHYSICAL EDUCATION IN SECONDARY SCHOOLS.

THE PROBLEM.

In the new civilization one of the most important problems of the high school, and the central problem of physical education, is how to secure and conserve health. This is becoming more and more a community problem.

The schools have been slow to adjust their program to the changed needs of the pupils and the community. Pupils no longer go to school three months in the winter to learn to read, write, and cipher, securing their vocational skill and bodily power during the other nine months. They go to school nine months and are idle the other three because the opportunities for developing vocational skill and bodily endurance have been taken away from them with the removal of industry from the home to the factory. The school must accept the new conditions of this industrial age and provide adequate opportunity for bodily exercise related to vocational skill and for the fundamental bodily exercises related to health.

Many people to-day are preserved to maturity who formerly would have died in childhood. Medicine has made splendid strides during recent years in decreasing the mortality due to zymotic diseases. The diseases which are increasing, those of the nervous system, are more inimical to the organic health of those who survive than are the infectious diseases. Insanity is on the increase.[1] Dr. Harris, formerly United States Commissioner of Education, as early as 1891 wrote:

> Our civilization is so bent on the conquest of nature and the production of wealth that it perpetually strains its supply of nervous energy and produces disaster. Here is the special problem of our time for hygiene to meet—How to restore and conserve nervous energy. There are three factors here: First, the one of food and its proper assimilation; second, the factor of sleep and rest; third, the factor of exercise, muscular and mental.[2]

While the increase in nervous diseases is rightly charged to a failure of bodily adjustment to the environment of the new civilization, to the saving of the weaker ones who formerly died in infancy, and to the greater strain of modern conditions, and although the number so classified is due in part to better diagnosis, it is a just indictment to say that the public schools have materially helped to augment conditions which lead to these diseases. It is not enough that the schools should not continue to increase the tendency to these diseases; they should in a constructive way assist in the necessary health adjustments of the pupils in city and country. It is the firm belief of this commission that the modern public high school owes a duty to the health of the adolescent youth of this country as a fundamental element of education. It is the belief of this commission that this duty is possible of fulfillment.

---

[1] Dr. R. W. Corwin, chairman of the health committee of the American Medical Association, says that "insanity is increasing twice as fast as the population (11 and 25)." See Nat. Educ. Assoc. Proc. for 1913, pp. 418–420.

[2] U. S. Commis. of Educ. Rept., 1891–92, Vol. I, P. XXII.

So far the public school has preempted the field of health education without occupying it. Theoretically, educators believe that health is more important than quantity of knowledge; practically, they seldom act upon the belief. The program of studies has not been adjusted to meet the changed needs of the pupils. The present arrangements for physical activity can be looked upon only as palliative measures in that they give some relief from the school desk. They are essentially of negative character, aiming to minimize harmful influences. The work of the schools calls primarily for the functional activity of the higher centers of the central nervous system. It fails to emphasize the principal positive hygienic factor in that it disregards the motor activities related to the lower nervous centers controlling circulation, respiration, nutrition, and elimination. Besides, it neglects an important phase of education in that it minimizes to the vanishing point those motor activities related to good carriage, motor presence, motor personality, and motor consciousness. The attainment of adequate motor control is impossible with the present equipment and time allotment.

Health is definitely related to the vigorous use of the big muscles of the trunk and legs. Instruction should be given in exercises and games which will bring into play these large fundamental muscles and should be pushed far enough to stimulate circulation, respiration, and perspiration. Methods of study should be devised which will allow more freedom and bodily movement even in academic work.

The tendency in some quarters to substitute military drill for more fundamental activity is a serious mistake. The addition of physical education to military drill for the rank and file of the armies of the world is a significant fact which should make clear the folly of such substitution. The thorough physical education courses at West Point and Annapolis, in our own country, and the fact that an army officer was sent to the United States by the Dutch Government to take normal courses in physical education at Springfield, to prepare himself to take charge of physical education in the Dutch military academy, show the need of the basis of an all-round motor training. In order to insure the preservation of health and the educational point of view in physical exercises, the administration of physical education should be lodged in the hands of the educational authorities exclusively. No narrow policy of mere military drill should be substituted for a broad program of fundamental health activities.

HEALTH PROGRAM RECOMMENDED.

The health needs of the high school pupil call for the following health program:

I. A careful health examination which should include:
  A.—Medical inspection.
  B.—Mental examination.
  C.—Physical examination.
II. A healthful environment in home and school.
III. Instruction in health problems.
IV. Physical activity.
  A.—Equipment, minimum requirement.
  B.—Amount and kind, minimum requirement.
  C.—Kind of exercise.
V. School credit.

I. HEALTH EXAMINATION.

The first step in the health program is to discover how nature has endowed the individual. It must ascertain by examination the physical and mental endowment and the capacity for activity.

A—Medical inspection.—The English and American medical inspection methods are well outlined in such books as Cornell's "Health and medical inspection of school children," Kelynack's "Examination of schools and scholars," Newmayer's "Medical and sanitary inspection of schools," Gulick and Ayres' "Medical inspection of schools." The administrative methods are presented in Rapeer's "School health administration." The objects of medical inspection have been the detection of infectious diseases, of physical defects in the pupil, and the improvement of the sanitary condition of the schoolroom. The medical inspector should cooperate with the physical instructor in the correction of physical defects and with the regular teacher or the trained psychologist in the diagnosis and treatment of mental defects.

B—Mental examination.—The mental examination should seek to ascertain the mental health of the pupil and his nervous and mental constitution. The health of an individual depends in large measure upon a normal central nervous system, and upon his attitude of mind toward his work. The time of entering the junior high school (seventh grade) is the most critical time in adolescence. At this time the constitution is particularly liable to nervous difficulties, as most neuroses either develop at this time, or lay their insidious hold then upon the individual, to develop later. Much stress in modern psychology is laid upon the necessity of correlating the program of the pupil with his dominant interest. In the junior high school he is offered a choice of subjects for the first time. The proper adjustment of his program is often related closely to his nervous health, and data for this adjustment should include the results obtained by mental tests.

It is probably unnecessary that critical mental examinations should be given to every pupil. It is, however, necessary to give such an examination to the subnormal and the supernormal pupil. For the other pupils an examination of their grades in their studies, correlated with their grades in physical education and manual training, will give a very fair index of their nervous and mental health and constitution, and will give data on which to base an all-round program for their high-school courses. In correlating the grades of the pupils special care should be taken to make sure that the marks represent capacity rather than mere attendance and good deportment. Care should be exercised, too, in differentiating between manual training and physical education. Manual training calls for the use of the small muscles of the eye and the hand, and, in a slight degree, the big muscles of the arms, legs, and trunk. Manual skill of the small muscles represents, in general, health of the fine neuromuscular mechanisms. In physical education the large muscles of the arms, legs, and trunk should be used vigorously. Good grades in this work would represent fundamental health with organic, neural and muscular capacity.

In terms of the physical education grades, pupils who are fond of physical activities, excel in them, and are leaders in games and sports as a rule possess good central nervous systems. The extreme type of these pupils, the athletes, need to be curbed in their sport. The athletic scholarship rules are made largely for their benefit, to repress too great attention to sport and to stimulate scholarship.

On the other hand, the pupil who has little physical skill and no interest in games and sports usually lacks organic vigor. In the extreme type of these pupils is the recluse and the bookworm. It is especially in this class that an unstable nervous system may be expected. If their education is confined to a purely intellectual education, it will be at the expense particularly of the organic centers of the nervous system, related to circulation, respiration, and nutrition.

A well-balanced course for each individual is the ideal. A mental examination, with all the modern methods for the subnormal and the supernormal, and a careful examination of the grades of the average pupil with special reference to his work in physical education and manual training upon entering the high school will aid materially in a wise selection of high-school courses.

C—Physical examination.—The physical examination calls for a study of the growth and physique of the pupil and a close correlation of the conditions found with the physical activity prescribed. The examination should include such vital problems as eyesight, hearing, growth in height and weight, bodily strength, lung capacity, cardiac efficiency. All these factors should be correlated with the adolescent maturity of the pupils and their scholarship. They are in themselves indices of mental capacity and maturity. The programs of the schools should recognize and use these findings.

Periods of rapid growth in height and weight precede growth in strength and endurance. Vigorous big-muscle exercise should be the rule during this period. Overexercise particularly should be avoided.

A clean-cut differentiation should be made between chronological age and physiological maturity. Both the physical examination and the physical efficiency tests should serve as aids in properly grading the health activities. Detailed studies on various phases of these problems have been made by Baldwin, Boaz, Crampton, Hughlings-Jackson, Foster, Godin, Hall, Marro, McCurdy, Stewart, and Whipple. (See the bibliography at the end of this report.)

Medical, mental, and physical examinations should be correlated with each other and with the general program of the pupil. Heretofore the examinations have been conducted partly by the medical inspectors, partly by trained psychologists, and partly by the director of physical education, without correlation between them. Splendid work has been done, but thus far no city is known to the committee to have a good working coordination of the various problems relating to the health of the pupils. Various cities have specialized on different phases. Some cities have an administrative plan which will enable them to work out the medical, hygienic, and physical activity aspects of the problem, but apparently have no regular examinations for determining the health of the central nervous system, nor for finding the type of ability of the pupil. Many cities do not seem to know exactly what they should seek to secure through a medical or physical examination, and do not use the results obtained by either.

II. A HEALTHFUL ENVIRONMENT IN HOME AND SCHOOL.

A healthful environment should include a home with adequate food for healthy growth, together with sleeping and living rooms which follow at least the minimum regulations of size, light, and ventilation. It should include a schoolroom properly ventilated, with temperature never above 70 degrees and preferably between 63 and 65 degrees F., provided a normal relative humidity of approximately 50 per cent and adequate air movement are maintained. The schoolroom should be supplied with proper natural and artificial lighting systems, and the walls should be so colored as to reduce eye strain. The textbooks should have size of type and width of line suitable for the proper position of the pupil at the desks. The desks should be arranged to save eye strain and decrease poor posture and deformity. The floors and walls should be kept free from dust. The schedule should be arranged as far as possible to increase body movements and decrease nervous strain. This may best be accomplished by having pupils change from room to room and by alternating kinds of work. In addition, 3-minute setting-up drills may with profit be used two or three times per day.

III. INSTRUCTION IN HEALTH PROBLEMS.

The pupils should be given instruction in: (*a*) The practical elementary problems which concern their health; as, for example, diet, care of the teeth, sex, sleep, exercise, and bathing in school and at home. (*b*) The general conditions related to health, as room temperature, ventilation, dust, school seating, and posture. (*c*) The public-health problems, like sewage disposal, milk and water supplies, and general control of infectious diseases.

Every pupil in the high school should be acquainted with elementary health problems in his environment. Direct application should be made to home, school, and community conditions. Definite reports of health conditions which test the powers of observation should be required. The examinations should test both the knowledge and the health habits of the pupils in home and school.

IV. PHYSICAL ACTIVITIES.

A.—EQUIPMENT (minimum requirements).

The equipment for physical activities in the public high school should include gymnasiums, showers, dressing rooms, playgrounds, and, if kept in a thoroughly hygienic condition, swimming pools. Abundant sunlight and adequate ventilation and air movement are essential elements in making the building a hall of health. The location of the gymnasium in an annex is strongly recommended, as it allows better hygienic conditions and permits greater freedom.

(*1*) *Gymnasiums.*—In large schools of more than 600 pupils there should be two gymnasiums, one for boys and one for girls, each large enough for a class of 50, that is, 60 by 80 feet. If we assume that each class contains 50 pupils; that the school day contains seven 45-minute periods; that a plan of overlapping 90-minute periods is adopted, making seven gymnasium periods per day, then one such gymnasium will provide two double gymnasium periods per week for 875 pupils, and the two gymnasiums will provide for 1,750 pupils. Practically, however, it is difficult to organize the schedule of a school so that each gymnasium class will have the same number of pupils. Proportional increases or deductions should be made according to the number of pupils and the number of class periods.

One gymnasium will be adequate where the school enrolls from 200 to 600 pupils. In small schools of fewer than 200 pupils one room might serve as the gymnasium for boys and girls, and also for the town hall. It might also be used as a community recreation center and for public meetings. A room used for combination purposes should have the windows and lights protected with wire screens to avoid breakage during games. The walls and ceiling should be of concrete, metal, or wood rather than plaster, for the same reason. No gymnasium should be constructed less than 50 by 70 feet.

(2) *Showers.*—The following number of showers is based upon a 15-minute period for bathing, and 50 pupils in a class:

(*a*) *For boys.*—An open room should be used, for moral and hygienic reasons. Single showers with individual control will supply five boys each. If multiple showers with central control are provided, one shower will supply seven boys. Multiple showers with central control are recommended, as they save time, water, and space. The shower and drying room should contain at least 20 square feet per shower. This gives adequate room for drying in the shower room. The showers should be placed, without inclosing, on the side wall of an open room.

(*b*) *For girls.*—Closed shower booths (3 feet 3 inches by 3 feet) should be used. One shower should be provided with individual control for each three girls, or one shower with multiple control for each five girls. Multiple control is recommended where an attendant can regulate all the showers.

(3) *Dressing rooms.*—Each pupil should have a gymnasium locker for storing street clothes during exercises and for the gymnasium suit during the time intervening between the exercise periods. As the space for street clothes needs to be larger than that for the gymnasium suit, economy may be observed in large schools by having small lockers for the gymnasium clothing for each pupil and enough large lockers for the use of two classes, one dressing for exercise and the other dressing for school work. Gymnasium clothing and towels should be kept in good hygienic condition, either through a school laundry or home washing.

(*a*) *For boys.*—(1) Individual lockers. Lockers should be 12 by 12 by 36 inches, two tiers in height. The space per individual for locker, aisle, and approaches should be 8 square feet. If congestion is avoided through the distribution of the boys of each class throughout the entire locker room this space might be reduced to 4 square feet per individual. (2) Box lockers. Box lockers 6 by 12 by 36 inches in height may be used for the storage of gymnasium clothing with enough large lockers for two classes, the one coming to the gymnasium and the other leaving it. Under these conditions 2½ square feet per individual are sufficient. The 36-inch height is desirable because it allows for the storage of bats and rackets.

(*b*) *For girls.*—Either the individual lockers or the box lockers may be used for girls as for boys with the same space requirements. The box lockers alone may be readily used where the street clothes are kept during the exercise period in the dressing booths. In addition, 100 dressing booths 2 feet 10 inches by 4 feet should be supplied. This gives booths for two classes of 50 girls each, one coming to the gymnasium and the other leaving it. In gymnasiums where the girls and boys alternate in its use, or where the gymnasium is not used continuously, 50 dressing booths would be sufficient. Again, it is possible to reduce the number of dressing booths to 50 by having one girl dress in a booth containing the clothes of a girl on the gymnasium floor.

(*4*) *Pool.*—Size of room 50 by 84 feet (with gallery), 42 by 84 feet (without gallery); size of pool, 24 by 60 feet; depth of pool, 3 feet 6 inches to 8 feet.

(*5*) *Playgrounds.*—Whenever conditions permit, the physical exercises should be conducted on the playground. The ground surface should be kept soft and free from dust. Various estimates have been given regarding the size required for the school playground. The following table shows the space estimated for one game of various plays:

Space estimated for various games.

	Curtis.[1]	Narragansett Machine Co.[2]
	Acres.	*Acres.*
Baseball[3]	1.00	2.00
Soccer	....	1.50
Indoor baseball	.20	....
Volley ball	.10	.03
Tennis	.10	.06
Basket ball	.05	.08
Football	....	1.20

[1] For elementary schools; see "Education Through Play," p. 210.

[2] For adults.

[3] Curtis suggests that the space for baseball may also be used for soccer in the fall, hockey in the late fall and early spring, and skating in winter.

Curtis's estimate for elementary school buildings calls for 2 acres. Organized games—baseball, indoor baseball, volley ball, tennis, basket ball—call for $1\frac{9}{20}$ acres, leaving $\frac{11}{20}$ for general unorganized play, running track, and pool. Curtis's estimate on the basis of 2 acres for 684 pupils is equivalent to 127 square feet per pupil for elementary schools. The National Education Association resolutions demand 272 square feet per child for play, recreation, and gardening. It would seem that 150 square feet per pupil ought to be the minimum requirement for play and recreation of junior and senior high-school pupils. This estimate does not include gardening. In small high schools more than 150 square feet per pupil are necessary in order to provide for baseball for the boys and volley ball and basket ball for the girls. An item often neglected is the game equipment for basket ball, baseball, volley ball, and other games. Grounds and gymnasiums are practically useless unless they are kept equipped for activity.

B.—TIME ALLOTMENT (minimum requirements).

Two double periods per week should be considered a minimum for this work.

Arrangement of time.

	Minutes.
1. Hygiene instruction once per week[1]	15
2. Passing to locker room and undressing[2]	15
3. Exercises and games	45
4. Shower, dressing, and passing to classroom[2]	15
Total	90

These exercise periods of 90 minutes twice per week should be supplemented by play periods after school of at least one hour, and, of course, by the regular recess periods and setting-up exercises between class periods.

Where the regular class periods are 60 minutes, as they are in some schools, the gymnasium period might be compressed under necessity to 60 minutes. This would be a real disadvantage, as it would lessen the organic and recreative types of exercise.

The following schedule shows how the 90-minute period for physical education can be fitted into a schedule in which the regular length of class periods is 45 minutes.

---

[1] This time should be used on the other days for swimming or games.

[2] In some cases it will be possible to reduce the amount of time for "passing to locker room and undressing" and increase the allowance for "shower, dressing, and passing to classroom."

Sample arrangement of double gymnasium periods in a high-school schedule.

Group I	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	Class 45.	Class 45.	Class 45.	Class 45.	Class 45.	
Group II	Class 45.	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	Class 45.	Class 45.	Class 45.	Class 45.	
Group III	Class 45.	Class 45.	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	Class 45.	Class 45.	Class 45.	
Group IV	Class 45.	Class 45.	Class 45.	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	Class 45.	Class 45.	
Group V	Class 45.	Class 45.	Class 45.	Class 45.	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	Class 45.	
Group VI	Class 45.	Class 45.	Class 45.	Class 45.	Class 45.	15 Hygiene.	15 Undress.	Ex. 45.	15 Bath.	
Group VII	Class 45.	Class 45.	Class 45.	Class 45.	Class 45.	Class 45.	15 Hygiene.	Undress.	Ex. 45.	15 Bath.

This schedule provides for seven classes of 50 pupils each; that is, theoretically 350 pupils per day per gymnasium, or 875 different pupils on the basis of two double periods per week for each pupil. This arrangement uses the gymnasium continuously and allows for alternation of two teachers in instruction in hygiene, physical education practice, and supervision of the bathing. Three hours of instruction during the school day, plus two hours on the playground and in the gymnasium or pool after school, should be the maximum requirement for one teacher. The remainder of the day is needed for administration and the keeping up of equipment, rcords, etc.

C.—KIND OF EXERCISE.

(*a*) *Physiological type of exercise.*—The types of exercise used should be those which call into play vigorously the large fundamental groups of the big muscles; these exercises are related to the development of vigor, endurance, and power. This instruction should be supplemented by exercises of skill, grace, and alertness. Special attention should be given to securing good postural habits while standing, sitting, and exercising. The training should give a virile, vigorous body, alert and well poised. Instruction should be given in gymnastics, athletics, swimming, and team games for all pupils.

(*b*) *Character-building activities.*—By proper control and administration of the team games and athletic contests the undesirable features and excesses of the representative teams can and should be eliminated without stopping games which have great health, social, and moral values when played and conducted in the right way. This is more rational than the radical remedy of abolishing them. Abolishment of the game as a school sport in public schools usually results in the team playing under other than school name and with no regulation. Some of the after-school activities, like the Boy Scouts and Camp Fire Girls, should receive vigorous encouragement.

The curriculum of activity both in school and after school should include all pupils, and should be related not only to health, but to right conduct. The qualities of honesty, fair play, courtesy, cleanness of speech, alertness, promptness, persistency, and manliness should be required of pupils during their activity. Both boys and girls should learn the value of the positive virtues. Dishonesty, unfairness, discourtesy, vulgarity, or profanity should not be tolerated in connection with any activity. Through public and private approbation, teachers, coaches, and the community should honor the pupils of vigor and high ideals, and discipline those who pursue dishonorable tactics.

Teachers and coaches who represent the highest ideals in morals and personal character should be selected. Preferably the coaching should be done by regular teachers, and if possible by the director of physical education. With the adolescent group the basal virtues are *caught* through the inspiring personality of teachers during their direction of activities, more often than they are *taught* through definite moral instruction in the classroom.

Moral instruction shows what is right. Moral action knits together the fibers which form character. Physical activity, particularly team games, rightly conducted, offers great opportunity for moral achievement; wrongly conducted, the result is moral deterioration. During this adolescent period the vigorous, virile leaders will enter into the team activities. These team boys will, in large measure, influence the moral standards of both the junior and senior high-school groups. The moral standards and personal leadership of the teachers of physical education will be a large factor in determining whether these boys are to be merely healthy animals or future moral leaders in the community. If the "win at any cost" idea dominates the coach, he may be the most potent factor in the community in destroying the moral ideals and the ethical standards of future leaders.

V. SCHOOL CREDIT.

The courses in hygiene should receive credit on the same basis as other classroom subjects. The physical practice in gymnastics, athletics, games, and swimming should receive positive credit on the same basis as laboratory courses. The hygiene instruction should be graded on the basis of classroom recitations and examinations. The physical practice should be marked on the basis of the quality of the work and on the effort of the pupil in daily practice. Tests of minimum physical proficiency should be given at regular intervals.

SUMMARY.

The present civilization is making great demands upon the vitality of the race. School practices which train simply eye, ear, tongue, and hand do not promote the health of the pupils. Laboratory work, shop work, military drill, and domestic science only slightly increase the big muscle activity. Big muscle work is essention to the health of the pupils. These activities are not secured in the home or in the street. Big muscle activities are essential to vocational and other kinds of skill. The higher levels of the nervous system depend for stability and health upon the organic development of the middle and lower levels. Big muscle work in the plays and games is an essential part of emotional control in relation to character building.

Administrative methods should be changed to require as a minimum two double periods per week for each pupil. The time allotted to double periods should be sufficient to allow changing of the clothes, vigorous exercise of 45 minutes with equipment, and time for bathing. The maximum number of pupils per class should be 50.

The program of activity under competent supervision should secure physical, social, educational, and moral results.

APPENDIX.

The following bibliographical suggestions, while not a part of the report, were prepared, on request, by the office of the American Physical Education Association, 93 Westford Avenue, Springfield, Mass. That association publishes twice a year a list of about 500 books on physical education, hygiene, and allied subjects. It also maintains a book department which furnishes advice, gratis, concerning books and, under certain conditions, loans books for examination.

I. BIBLIOGRAPHY FOR SMALL HIGH SCHOOLS.

Many large cities have printed courses in physical education which would be suggestive to rural high schools. Among others, the following cities have well-organized courses: Detroit, Mich.; Kansas City, Mo.; Newark, N. J.; Philadelphia and Pittsburgh, Pa.; San Francisco, Cal.; and Springfield, Mass.

Teachers without technical training will find the following books helpful in organizing work in small high schools without gymnasiums.

GENERAL WORKS.

McKenzie, R. Tait. Exercise through education and medicine. Philadelphia, W. B. Saunders & co. $4.

Michigan. Department of education. Syllabus of physical training. Lansing, Mich.

New Jersey. Education department. Syllabus of physical training. Trenton, N. J.

New York (State). Education department. Syllabus of physical training. Albany, N. Y.

ATHLETICS.

Moore, Harry. Keeping in condition. New York, Macmillan. 75 cents.

Public schools athletic league. Official handbook. New York, American sports publishing co. (Red cover series, no. 71 R.) 25 cents.

Reilly, Frederick J. New rational athletics for boys and girls. Boston, D. C. Heath & co. 64 cents.

Stecher, W. A. A guide to track and field work contests and kindred activities. Philadelphia, McVey. 50 cents.

Withington, Paul. Book of athletics. Boston, Lothrop, Lee & Shepard co. $1.50.

GAMES AND PLAY.

Bancroft, Jessie H. Games for the playground, home, school, and gymnasium. New York, Macmillan. $1.50.

Bowen, W. P. The teaching of play. Ypsilanti. Mich., published by the author; American physical education association, distributing agent. $1.

Curtis, H. S. Education through play. New York, Macmillan. $1.25.

———. The reorganized school playground. Washington, D. C., Government printing office. (U. S. Bureau of education. Bulletin, 1913, no. 40.) 10 cents.

Lee, J. Play in education. New York, Macmillan. $1.50.

FREE GYMNASTICS.

Arnold, E. H. Free gymnastics and tactics. New Haven, Conn., published by the author. 75 cents.

———. Gymnastic nomenclature, free gymnastics. New Haven, Conn., published by the author. 35 cents.

Bowen, W. P. The teaching of elementary school gymnastics. Ypsilanti, Mich., published by the author; American physical education association, distributing agent. $1.

McCurdy, J. H. Calisthenic nomenclature. Springfield, Mass., published by the author; American physical education association, distributing agent. $1.25.

Skarstrom, William. The teaching of gymnastics. Wellesley, Mass., published by the author; American physical education association, distributing agent. $2.

Stecher, W. A. The theory and practice of educational gymnastics, for boys' and girls' high schools. Philadelphia, McVey. $1.25.

MECHANICS OF THE BODY.

Bancroft, Jessie H. The posture of school children. New York, Macmillan. $1.50.

Bowen, W. P. Applied anatomy and kinesiology. Philadelphia, Lea & Febiger. $3.50.

———. A teacher's course in physical training. Ann Arbor, Mich., George Wahr. $1.25.

Skarstrom, William. Gymnastic kinesiology. Wellesley, Mass., published by the author; American physical education association, distributing agent. $1.25.

HYGIENE.

Allen, W. H. Civics and health. Boston, Ginn & co. $1.25.

Hill, Hibbert W. The new public health. New York, Macmillan. $1.25.

Lyster, Robert A. School hygiene. Baltimore, Warwick & York. $1.25.

———. Textbook of hygiene for teachers. Baltimore, Warwick & York. $1.50.

Pyle, Walter L., *ed.* A manual of personal hygiene. Philadelphia, W. B. Saunders co. $1.50.

Rapeer, L. W. Educational hygiene. New York, Scribner. $2.50.

Terman, Lewis M. The hygiene of the school child. Boston, Houghton Mifflin co. $1.65.

II. GENERAL BIBLIOGRAPHY.

The following bibliography for more general use is suggestive rather than complete. The choice of books is based upon the demand which has come to the book department of the American Physical Education Association.

ACCIDENTS, EMERGENCIES.

Leonard, C. H. Manual of bandaging adapted for self-instruction. Illinois medical journal, 370 Harper ave., Detroit, Mich. $1.50.

Moody, C. S. Backwoods surgery and medicine. New York, Outing pub. co. 80 cents.

ADOLESCENCE.

Baldwin, B. T. Physical growth and school progress. A study in experimental education. Washington, Government printing office. 215 p. (U. S. Bureau of education. Bulletin, 1914, No. 10.)

Boaz, E. G. Cyclopedia of education. vol. 3, p. 187–190.

Crampton, C. W. Physiological age. American physical education review, March–June, 1908.

Foster, W. L. Physiological age as a basis for classification of pupils entering high schools. Psychological clinic, 4: 83–88, 1910.

Godin, P. Réchérches anthropométriques sur la croissance. Paris, A. Maloine, 1903. p. 180–197.

Hall, G. S. Adolescence. 2 vols. New York, D. Appleton & co., 1905. p. 93, vol. 1. $7.50.

Hughlings–Jackson. The three level theory. Journal of mental science, 33: 25–28, 1887–88.

Marro, ———. La puberté. Paris, C. Reinwald Schleicher frères, 1902. 530 p.

McCurdy, J. H. Physical efficiency tests during adolescence. *In* Fifteenth International congress on hygiene and demography. Transactions.

Stewart, S. F. A study of physical growth and school standing of boys. Journal of educational psychology, 7: 414–426, 1916.

Whipple, G. M. Physiology and hygiene of adolescence. *In* Principles of secondary education; ed. by P. Monroe. New York, Macmillan, 1914. Chapter 7, p. 246–312. Bibliography.

ANATOMY, ANIMAL MECHANICS.

Bowen, W. P. Teacher's course in physical training. Ann Arbor, Mich., George Wahr. $1.25.

Skarstrom, W. Gymnastic kinesiology. Wellesley, Mass., published by the author; American physical education association, distributing agent. $1.25.

Wilder, H. H. History of the human body. New York, Henry Holt. $3.25.

ANTHROPOMETRY.

Seaver, J. W. Anthropometry. Chatauqua press. $1.50.

ATHLETICS (TRACK AND FIELD), BASEBALL, FOOTBALL, TENNIS, ETC.

Bancroft, J. H., *and* Pulvermacher, W. D. Handbook of athletic games. New York, Macmillan. $1.50.

Berry, Elmer. Baseball. Springfield, Mass., published by the author; American physical education association, distributing agent.

Dier, J. C. The book of winter sports. New York, Macmillan. $1.50.

Moore, H. H. Keeping in condition. New York, Macmillan. 75 cents.

Rath, Emil. Apparatus, track, and field work for women. North American gymnastic union. $1.25.

Reilly, F. J. New rational athletics for boys. Boston, D. C. Heath. 64 cents.

CALISTHENICS, MARCHING.

Bancroft, J. H. School gymnastics, free hand. Boston, D. C. Heath. $1.60.

———. School gymnastics with light apparatus. Boston, D. C. Heath. $1.80.

Berry, Elmer. Manual of marching. New York, Association press. 25 cents.

Bowen, W. P. The teaching of elementary school gymnastics. Ypsilanti, Mich., published privately; American physical education association, distributing agent. $1.

Enebuske, C. J. Progressive gymnastic days order. New York, Silver, Burdette & co. 75 cents.

McCurdy, J. H. Hygienic dumb bell drill. New York, Association press. 10 cents.

———. Calisthenic nomenclature. Springfield, Mass., published privately; American physical education association, distributing agent. $1.25.

Rath, Emil. Free exercises with and without hand apparatus. Indianapolis, Ind., North American gymnastic union. $1.25.

Roberts, R. J. Home dumb-bell drill. New York, Association press. 10 cents.

Skarstrom, William. The teaching of gymnastics. Wellesley, Mass., published privately; American physical education association, distributing agent.

Stecher, W. A. Theory and practice of educational gymnastics for boys' and girls' high schools. Philadelphia, McVey. $1.25.

Y. M. C. A. Gymnastic nomenclature. New York, Association press. $1.

CAMPING, SCOUTING.

Boy scouts' handbook. Garden City, N. Y., Doubleday Page & co. 35 cents.

Camp fire girls' handbook. New York, Campfire outfitting co., 16–18 W. 22d st. 25 cents.

Carpenter, W. S. Winter camping. New York, Outing publishing co. 70 cents.

Gibson, H. W. Camping for boys. New York, Association press. $1.

Kephart, H. Camp cookery. New York, Outing publishing co. 80 cents.

———. Camping and woodcraft. New York, Outing publishing co. $1.50.

EUGENICS.

Jewett, F. G. The next generation. Boston, Ginn & co. 75 cents.

Jordan, D. S. War and the breed. Boston, Beacon press. $1.35.

Walter, H. E. Genetics. An introduction to the study of heredity. New York, Macmillan. $1.50.

DANCING, FOLK SONGS, SINGING GAMES, ETC.

Burchenal, E. Dances of the people. New York, Schirmer. $1.50.

———. Dancing and singing games. New York, Schirmer. $1.50.

———. Folk dance music. New York, Schirmer. $1.

———. Folk dances of Denmark. New York, Schirmer. $1.50.

———. Folk dances of Finland. New York, Schirmer. $1.50.

Casky, G. M. Athletic pageant, Athletic jubilee. Milwaukee, Wis., Published by the author. Each, 50 cents.

———. American clown—athletic dance for men and boys. Milwaukee, Wis., Published by the author. $1.

———. Arkadsky Russian dance, American sailor. Milwaukee, Wis., Published by the author. Each, 50 cents.

Morris dances. Parts 1–4. New York, H. W. Gray. Each, $1.75.

Rath, Emil. Gymnastic dancing. Indianapolis, Ind., North American gymnastic union. $1.25.

Sharp, C. J. Country dances. Parts 1–4. New York, H. W. Gray. Each, $1.75.

GYMNASTICS, BOXING, FENCING, WRESTLING, TUMBLING, PYRAMIDS.

Butterworth, H. How to tumble. (Includes pyramids.) Newark, N. J., Published by the author. $1.

Rath, Emil. Apparatus, track and field work for women. Indianapolis, Ind., North American gymnastic union. $1.25.

Y. M. C. A. Graded gymnastic exercises, cards. New York, Association press. $1.50.

———. Nomenclature, New York, Association press. $1.

HISTORY OF PHYSICAL EDUCATION.

Gardiner, E. N. Greek athletic sports and festivals. New York, Macmillan. $2.50.

Leonard, F. E. Pioneers of modern physical training. New York, Association press. $1.

HYGIENE.

Allen, W. H. Civics and health. Boston, Ginn & co. $1.25.

Goldmark, J. Fatigue and efficiency. New York, Survey associates. $1.50.

Hough *and* Sedgwick. The human mechanism. Boston, Ginn & co. $2.50.

Pusey, W. A. The care of the skin and hair. New York, Appleton. $1.

Pyle, W. L. Manual of hygiene. Philadelphia, W. B. Saunders. $1.50.

Winslow, K. The prevention of disease. Philadelphia, W. B. Saunders. $1.75.

PUBLIC HYGIENE.

Bergey, D. H. Principles of hygiene. Philadelphia, W. B. Saunders. $3.

Richards, E. H. Sanitation in daily life. Boston, Whitcomb & Barrows. $2.50.

———. Conservation by sanitation. New York, Wiley. $2.50.

Thompson, W. G. Occupational diseases. New York, Appleton. $6.50.

SCHOOL HYGIENE.

Ayres, L. P. Open-air school. Garden City, N. Y., Doubleday Page & co. $1.20.

Dresslar, F. B. School hygiene. New York, Macmillan. $1.25.

Johnston, C. H. Modern high school. New York, Scribner. $1.75.

Offner, M. Mental fatigue (hygiene of instruction). Baltimore, Warwick & York. $1.25.

Rapeer, L. W. Educational hygiene. New York, Scribner. $2.50.

———. School health administration. New York, Teachers college, Columbia university. $2.15.

SCHOOL TEXTS IN HYGIENE AND PHYSIOLOGY.

Conn, H. W. Physiology and health. New York, Silver, Burdette & co. $1.10.

Gulick, L. Hygiene series: Book I, Good health, 40 cents. Book II, Emergencies, 40 cents. Book III, Town and city, 40 cents. Book IV, The body at work, 50 cents. Book V, Control of body and mind, 50 cents. Boston, Ginn & Co.

SEX HYGIENE.

Bigelow, M. A. Sex education. New York, Macmillan. $1.25.

Exner, M. Rational sex life for men. New York, Association press. 50 cents.

MEDICAL GYMNASTICS, MASSAGE, AND POSTURE.

Bancroft, J. H. Posture of school children. New York, Macmillan. $1.50.

Bucholz, C. H. Therapeutic exercise and massage. Philadelphia, Lea & Febiger. $4.

McKenzie, R. T. Exercise in education and medicine. Philadelphia, W. B. Saunders. $4.

Mosher. The physical training of women in relation to functional periodicity. Stanford university, published by the author. 25 cents.

Wide, A. Medical gymnastics. New York, Funk & Wagnalls. $3.

MEDICAL INSPECTION.

Cornell, W. S. Health and medical inspection of school children. Philadelphia, Davis. $3.

Hoag, E. B. Health index of children. Whitaker and R. 80 cents.

Newmayer, S. W. Medical and sanitary inspection of schools. Philadelphia, Lea & Febiger. $2.50.

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on
or before the date last stamped below.

the
nders.
Nutrit
P
Bancroft, J. H
New York,
Chubb, P., and
Curtis, H. S.
———. Play
De Groot, E. B
Johnson, G. E.
Lee, J. Play

Corsan, G. H.
Goss, G. E. Li

Ball, W. Cons
cents.
American publi
and purific
NOTE.—Prices

Blakiston
.50.
, W. B
.25.
mnasium.
.25.
co. $1.00.
0 cents.
$1.
press. 15
mination
conditions.

LIST OF REPORTS OF THE COMMISSION ON THE REORGANIZATION OF SECONDARY EDUCATION NOW AVAILABLE.

The following reports of the Commission on the Reorganiaztion of Secondary Education are now available or in press as bulletins of the United States Bureau of Education and may be secured of the Superintendent of Documents, Washington, D. C., at the prices indicated. Other reports are in preparation. Remittance should be made in coin or money order as stamps are not accepted: cepted:

The Teaching of Community Civics, Education Bulletin 23 for 1915. 10 cents.

Social Studies in Second Education, Education Bulletin 28 for 1916. 10 cents.

Reorganization of English in Secondary Schools, Education Bulletin 2 for 1917. 20 cents.

Music in Secondary Schools, Education Bulletin 49 for 1917. — cents.

Physical Education in Secondary Schools, Education Bulletin 50 for 1917. — cents.

Moral Values in Secondary Education, Education Bulletin 51 for 1917. — cents.

I781 National education ass.
N27 Com.on reorganization
1918 of secondary education
Physical education.

NAME	DATE DUE
Bowley 2/28/38	87984